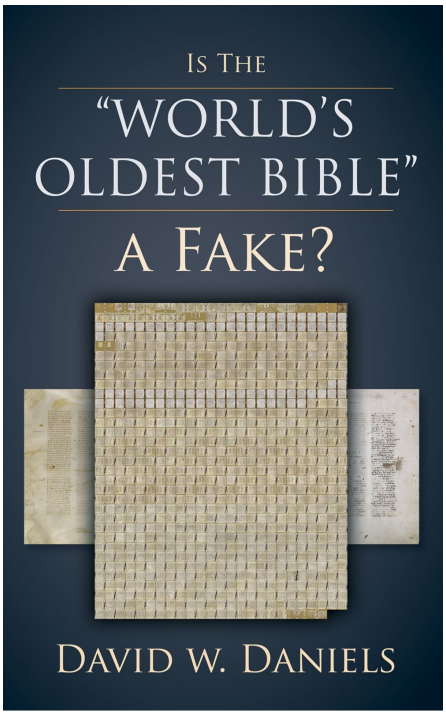
Is David W. Daniels' "Codex Sinaiticus Evidence" a Fake?



Background

Claims by Cooper, Daniels, Spencer (= 'Steven Avery') *et al* that Codex Sinaiticus leaves seen in the 1840s were visually white have been shown in a former work to be mistaken.[1] Contemporary witnesses to the leaves referred to the *type* of parchment as 'white parchment', which refers to unstained parchment, but this was also their descriptor for other manuscripts of over a thousand years old whose colour attribute they described as yellow, including Codex Sinaiticus. All old 'white parchment' manuscripts have a yellowed appearance and none look white. The error of the aforementioned writers (confusing type with attribute) has for years fed a conspiracy theory that Codex Sinaiticus was written in the nineteenth century on parchment that appeared white in the 1840s, but which was deliberately darkened during the 1850s to give it an appearance of great age. The conspiracy theory has been buttressed by photographic images purporting to show that the 43 leaves in Leipzig, recovered in 1844, are still white.

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[1] K. McGrane, *A Review of 'The Forging of Codex Sinaiticus' by Dr W.R. Cooper against detailed background of the discovery of the Codex* (2018).

David W. Daniels is prominent among those responsible for propagating this error, based not only on misunderstanding the sources but also on comparisons of the alleged colours of the leaves from the four locations that hold parts of the Codex. Rather than inspect the Codex physically himself, Daniels has chosen instead to use internet images from the four locations, which have been colour processed very differently, on the basis of which he and others claim that there is genuine evidence that all the leaves except those recovered in 1844 have been darkened. But there is a far greater difference between the *colour processing* of images on the internet from the four locations than the actual differences in colour of the leaves between locations. These commentators, however, chose not normalize the colour rendering of the images *between locations* before making their comparisons in order to make judgments valid, robust and meaningful – had they done so, their argument on the basis of colour would have collapsed. Instead, false colour rendering promoting invalid colour comparison feeds their conspiracy theory, and appears on the front cover of a book by Daniels, and is the subject of several videos by him.

The situation appears more serious than mere ignorant assumptions about the state of the images, for Daniels make positive assertions that are demonstrably untrue, on the back of which he rests further positive assertions that someone deliberately discoloured the leaves, thus fuelling the conspiracy theory. In his book *Is the "World's Oldest Bible" a Fake?* (2018) David Daniels states,

> Starting in 2009, digital images of all the known pages of the Sinaiticus became available to view online. So anyone could view undoctored photographs of every known page, for the first time. In early 2014, Steven Avery asked me to look at these photos…So I just looked at the CFA [Leipzig leaves] and other Sinaiticus pages, back and forth, over and over, for hours. Steven gave me a hint that perhaps someone had whitened up the pages of the CFA, So I was looking to see if there was evidence of this. But what I found was even stranger: someone had darkened the rest of Sinaiticus!

Daniels is making a claim—contrary to the evidence, as we shall demonstrate—that photographic images of 'all the known pages…available to view online' are 'undoctored'. This is a non-technical term, which in context is intended to mean that the images can be relied upon as accurate reproductions of the original, especially in regard to colour (which is, after all, Daniels' main point). As we shall show, such a claim can only be sustained for the images of the British Library leaves: the images of the Leipzig leaves, as well as those from Mt Sinai and St Petersburg are in that sense anything but 'undoctored'. Even if 'undoctored' is weakened in its meaning merely to mean 'consistent colour reproduction' then this also is false.

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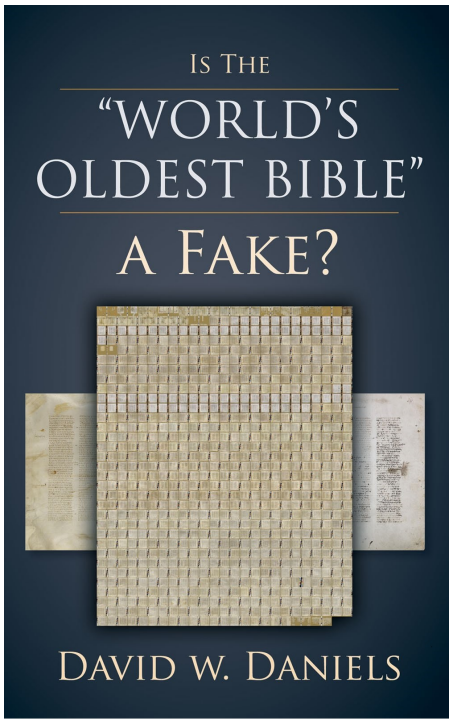
Analysis



Codex Sinaiticus is not a fake, whether or not it should be regarded as the world's oldest Bible: the fakery is going on elsewhere. Daniels promotes the idea that there a *radical* difference in colour between the leaves held in Leipzig, recovered by Tischendorf in 1844, and the leaves in London, recovered by Tischendorf in 1859, and his whole front cover artwork serves those ends. Daniels argues that the leaves recovered in 1844 (the portion of the leaf showing on the centre right of his cover is one such) are white; whereas the leaves recovered in 1859 (the portion of a leaf on the left is one such) are yellow-brown. To make the case more visually apparent, the larger image in the centre is a collage of all the extant pages of Codex Sinaiticus, which by some artistic licence is casting a false shadow over the leaves upon which it is superimposed. The lighter bands near the top of the collage are images of the pages recovered in 1844, and are easily distinguishable. Thus, argues Daniels, the leaves recovered in 1859 were deliberately discoloured by someone between 1844 and 1859, which then begets the question 'Who darkened Sinaiticus?', the title of chapter 12 in Daniels' book. This question is based on false premises, yet Daniels claims direct divine revelation for this approach.[2]

In what sense is Daniels' front cover a fake, and what is wrong with his argument? The short answer is that the pages recovered in 1859 and currently in the British library are the only ones on his collage reproduced in close to true colour. All the other pages are displayed in false colour. Specifically, the colours on the leaves recovered in 1844, and now at Leipzig, present the parchment as a bleached out shade of grey, and the ink as darker brown, which is <u>not</u> how they appear in real life. This non-true colour reproduction is very obvious when we look closely at the individual photographs that make up the collage.

[2] 'I...went into prayer...I heard these words: "What if they're fakes?" And I saw a mental image of Codex Sinaiticus...A few days later, I was praying...My mind was filled with one thought: Codex Sinaiticus...I prayed and asked God, "What question should I ask?". And I heard, "What colour is it?" And that was the beginning of all you are about to read.' (p.12).

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Here, for example, are six British Library pages and six Leipzig pages within such a collage. The two partial pages shown on Daniels' front cover, either side of the collage, are the two at the centre of this detail below:

Fortunately, every original photograph making up the collage was taken with a Kodak (or similar) colour separation guide and greyscale within the frame. The colour strips and greyscales were included to enable a printer to control printed colour, contrast etc for faithful reproduction. But it is also a very useful guide to the viewer to ascertain whether correct colour balance has been achieved. The colours on the Kodak colour separation guide are the standard additive and subtractive colours, viz blue, cyan, green, yellow, red, and magenta,[3] which in a faithful reproduction will appear as below:

Just a quick glance at the above collage detail shows that there is a splash of magenta present in the six British Library images that is absent in the Leipzig images.

[3] The standard RGB colours on the reference strip have red tending to orange, and blue is tending to indigo. The indigo-blue colour is sometimes described as 'purple'.

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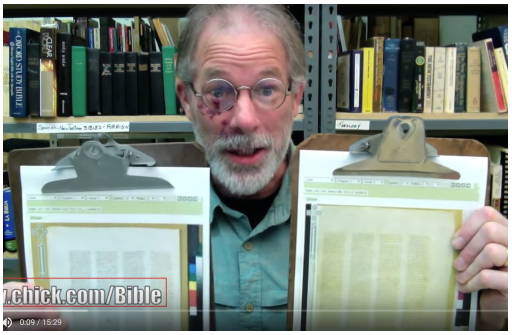
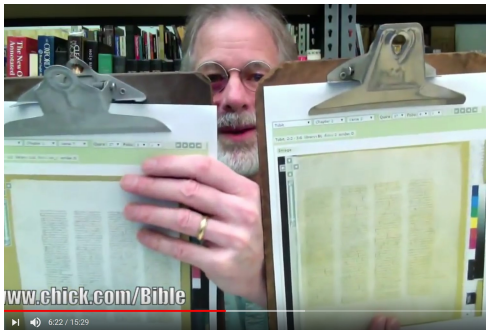
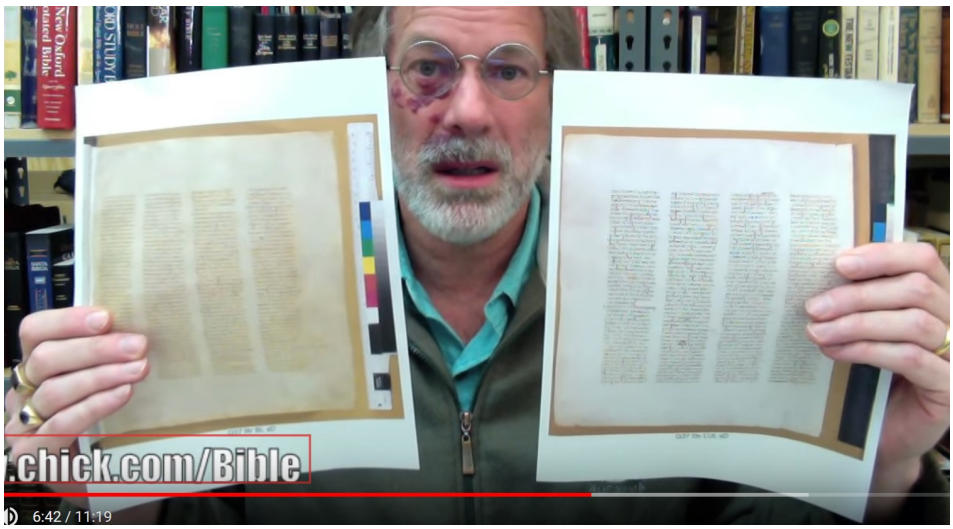
The images below are stills from a video featuring Daniels showing prints of a Leipzig leaf and a British Library leaf taken from screenshots of the Codex Sinaiticus Project website. Daniels' various ways of holding up the clipboards have the unfortunate effect always of obscuring one of the colour separation strips. Most viewers will never have seen such images juxtaposed side by side before. But had they been able to see the colour separation strips from the two images simultaneously, they would have seen evidence that Daniels was making a false comparison. However, Daniels never shows the images side by side without obscuring one of the colour separation strips. The difference only becomes evident by comparing two stills taken many minutes apart, as shown below.





A reputable printer would have used the colour separation information to print the images in close to true colour if the known aim and purpose was for comparing the colours of the originals. But had Daniels done that then he would have been unable to make his claims based on visual appearance as his viewers would thereby see little difference between the images.

Below is a still from another video where Daniels obscures as before. Observant viewers might nevertheless notice that the brown background behind each page appears as different shades, though it is the same material. This is a clue that at least one of the images must be in false colour.



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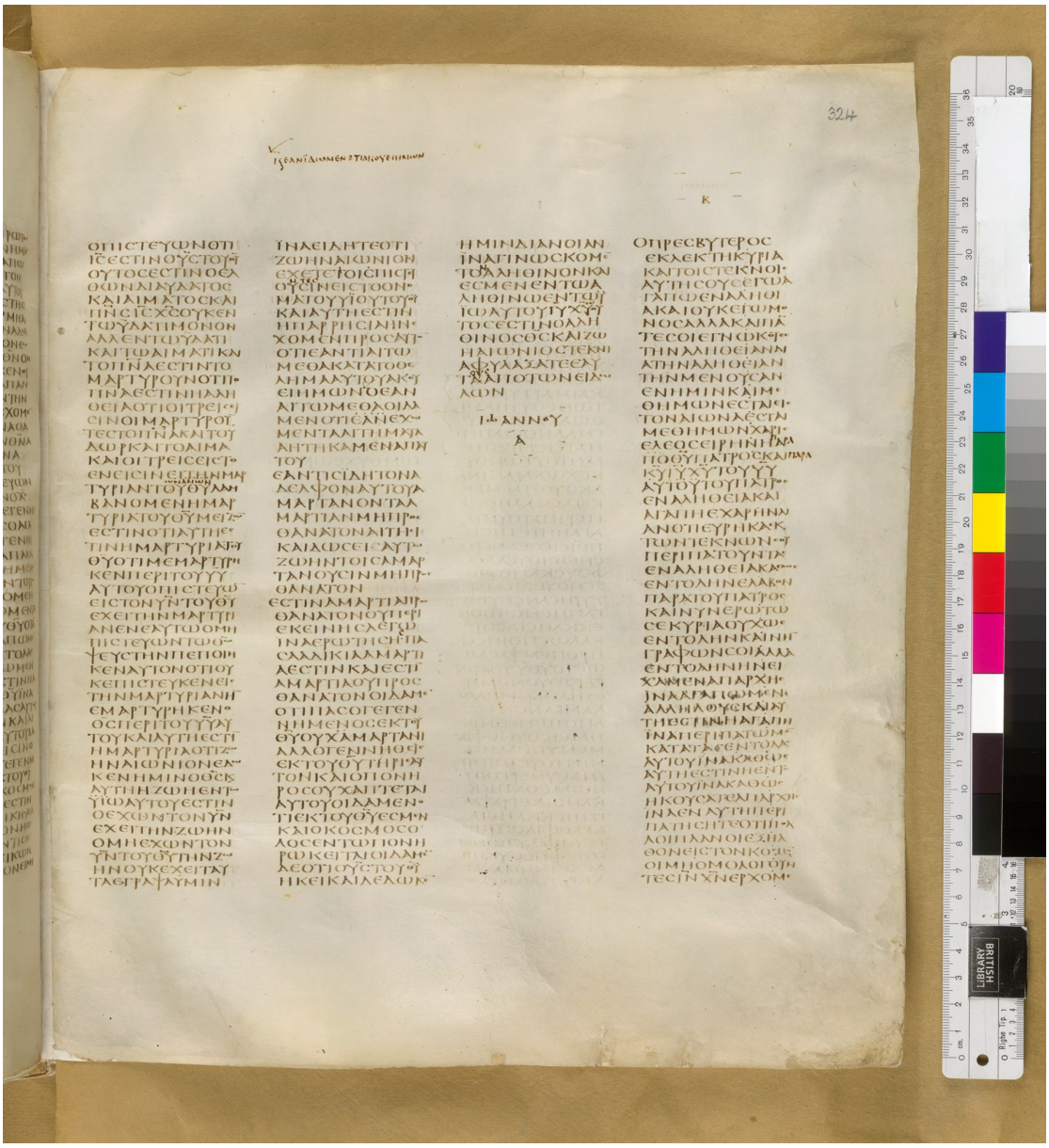
Below is a page of the Codex in the British Library (*not* off the Codex Sinaiticus Project website) showing the superb quality of the original British Library digitizations, with colour separation strip and greyscale included:[4]



Colour fidelity is excellent, compared with a reference Kodak colour separation strip:

← Reference

On the greyscale the full range is represented from white to black.[5] Clearly, when the British Library had their leaves photographed, one of their principal aims was colour and contrast fidelity.

[4] This image is public domain and free of copyright.

[5] This may not be evident if viewing on a poor quality or poorly set up computer monitor.

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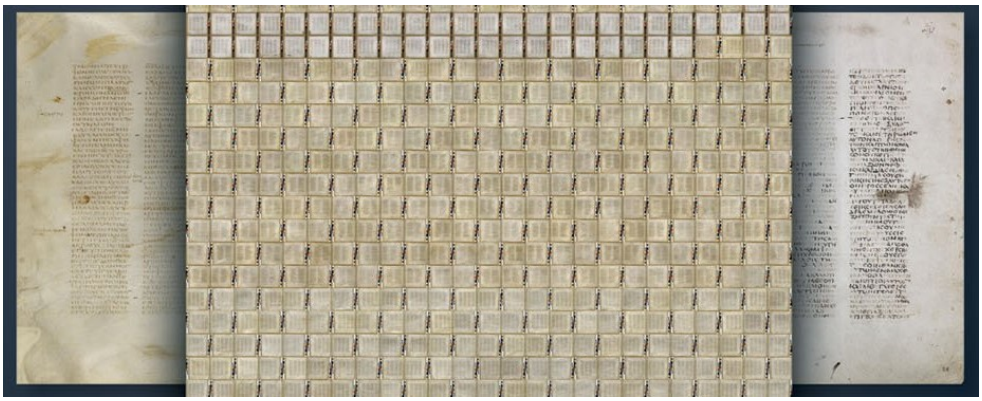
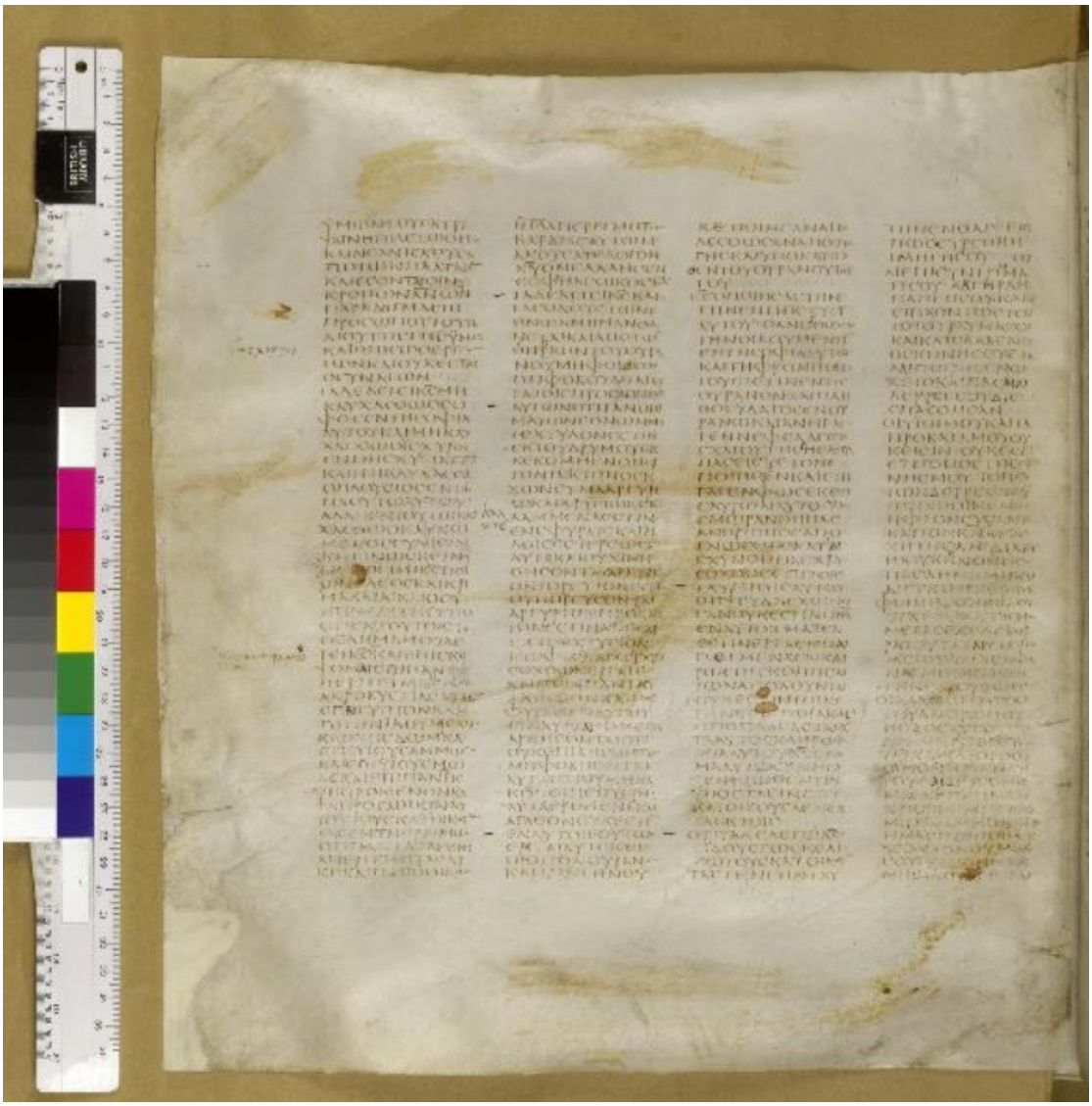
Now let us look carefully at the images that Daniels has used on his front cover which he has taken from the Codex Sinaiticus Project website (CSP) and then superimposed fake shadows:



Firstly, the British Library page left of his collage, and representative of the yellow-brown pages on the detail of the collage above:



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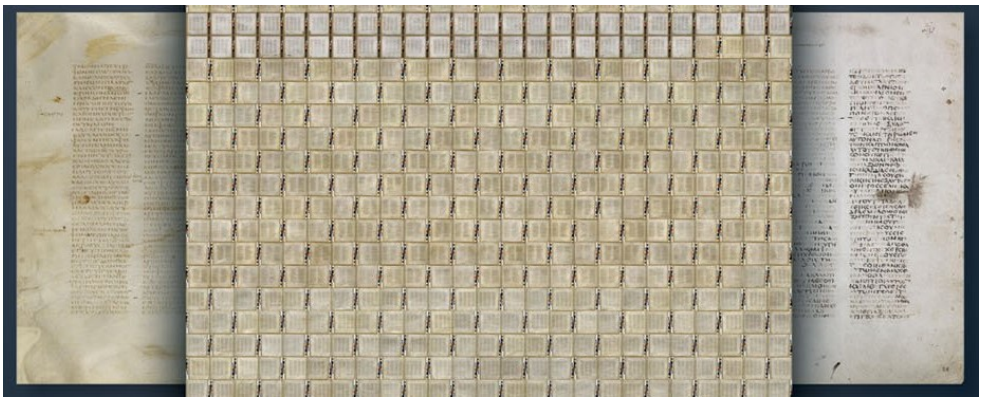
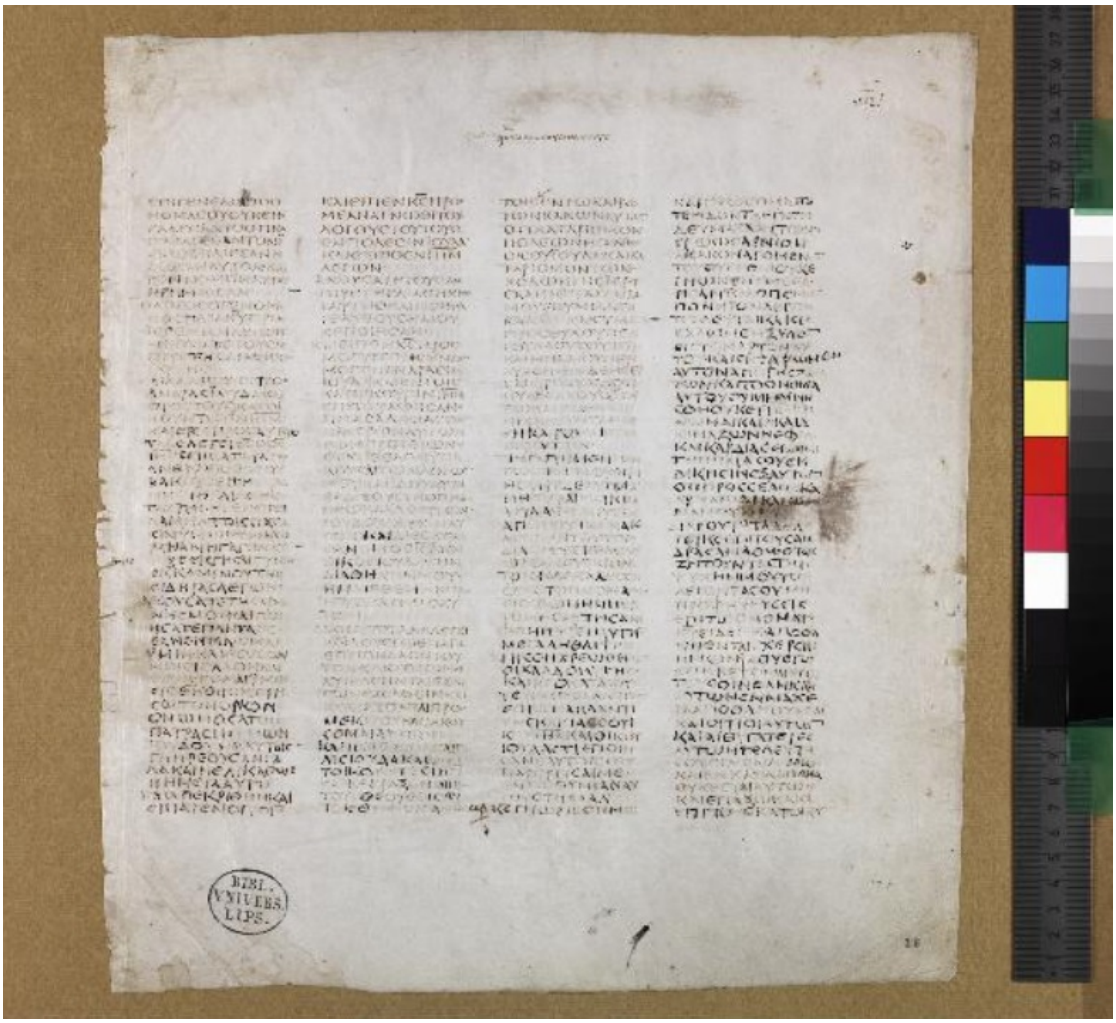
And secondly the Leipzig University Library page that appears to the right of his collage, representative of the lighter ones in the top two rows of this detail of the collage:



Here below:



Anyone with <u>even the slightest familiarity</u> with colour reproduction will perceive that the reproduction of the colours on the reference Kodak strip of this Leipzig page is <u>not faithful</u>.

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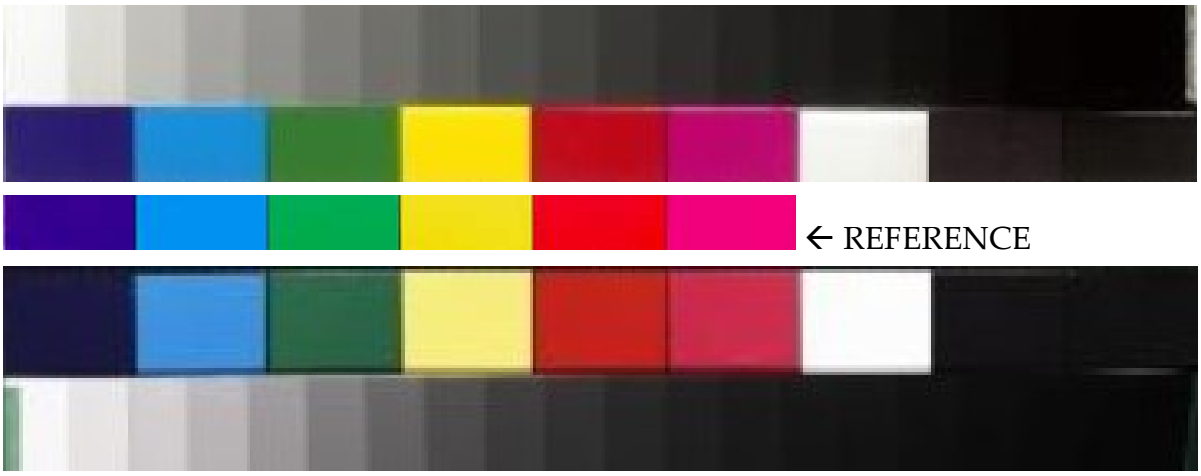
The colour separation strips and greyscales taken from the above images are shown below (flipped for ease of comparison), and compared to the standard Kodak colour separation strip:

LONDON



LEIPZIG

The centre strip is the reference. The top strip shows the colour separations in the British Library CSP images. We can see immediately that they are indeed close to the reference colours, though they are not quite as good as the original high quality images. However, we may reasonably infer that the images on the website are reproduced in close to real colour. Clearly, when the British Library supplied their digitized images to the CSP website their *aim* was to preserve fidelity to the originals in respect of colour.

The same cannot be said of the images of the Leipzig leaves. The bottom strip shows the colour separations from the Leipzig University Library CSP images. Although the red and cyan are close to the reference, the blue is much too dark – almost black; green is also too dark, but yellow is much too pale. Magenta is no longer distinctively magenta but has become a pinky-red. Thus it is plain that there is an element of *false colour* in the display of the Leipzig leaves. The colours are false to the extent that the yellow colour of the manuscript parchment has been washed out to a shade of light grey and the brown ink has been darkened. Moreover, the contrast has been increased, as is evident from the associated greyscale.

This observation is confirmed by Jacob W. Peterson, Research Fellow with The Center for the Study of New Testament Manuscripts (CSNTM), a world leader in digitizing ancient manuscripts, which has worked with more than 40 institutions around the world and produced more than 350,000 images of New Testament manuscripts.

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Peterson describes his role as follows:

> My job is to critique photographs of manuscripts and you can ask teams working under me how much of a stickler I can be about getting things right.

Peterson and CSNTM were not involved in the digitization project of the Codex Sinaiticus Project (CSP) and thus are independent of that exercise.[6] Reviewing the CSP website images Peterson remarks:[7]

> The Leipzig colour charts unfortunately have some problems. The magenta and the purple patches are clearly not correct. At times the magenta is barely distinguishable from the red and the purple almost looks black. The grey and black patches are also barely distinguishable. Similarly, the greyscale portion of the chart has barely distinguishable sections on the black end and the middle grey colour ends up being in the upper third of the chart rather than in the middle. To these colour differences can also be added the background colour for the images.
>
> The colour chart in the London images is visually much closer to what I would expect. The colour variations between the patches are clear and sharp. There's no mistaking the magenta for a slightly different red. Similarly, the gradient of the greyscale proceeds nicely and evenly with differences between the sections noticeable at every point.

Peterson explains further:

> [T]he colour balance for the [Leipzig CSP] images appears to be off…What this means is that the photographs of the Leipzig portion are not entirely accurate representations of the real leaves…[T]he Leipzig leaves are artificially lighter in the [CSP] images than in reality.
>
> I made a technical measurement of the lightness value of the white square in the colour target in one of the images at Leipzig, and it was 99, which is impossible given the type of target used and in comparison to the 95 value seen in the images at London. This means that the image from Leipzig is washed out. At minimum, it has what is technically called a $\Delta 4$ change.

Christoph Kappes, CEO of Xplain GmbH, the company who actually worked on this digitization project with Leipzig University Library, confirmed that their aim was to 'provide the Codex Sinaiticus in a quality that is better than

[6] Peterson's words are taken from a conversation between himself and James Snapp, Jr, in mid-2018 following Daniels' claims.

[7] Note: Peterson chooses to describe the blue reference patch as 'purple', as it is indeed purplish by perception.

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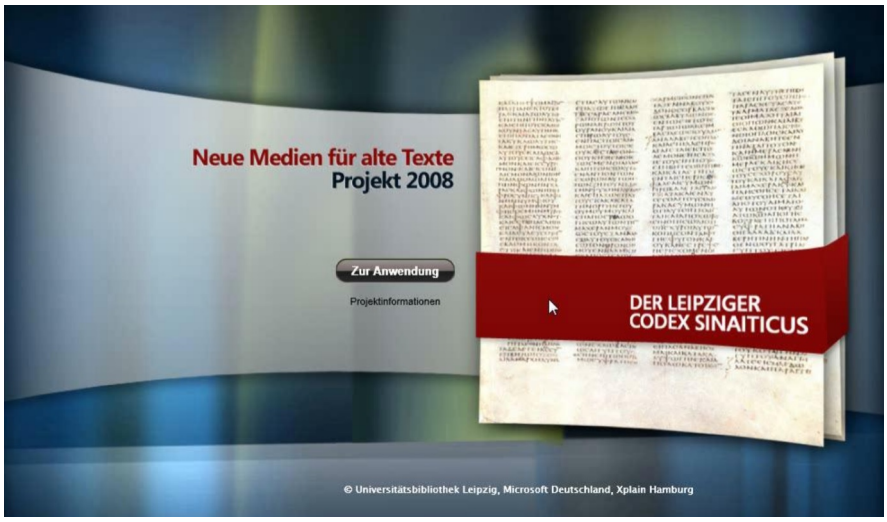
the original… We can show the scripture in so many different ways that it gives a vivid impression'.[8] Colour fidelity does not appear to have been an overriding aim, however, and appears to have been subordinated to other considerations. Unquestionably, the Leipzig images presented on the CSP website did *not* achieve colour fidelity.



It need hardly be explained that if certain image attributes are enhanced to be 'better than the original' then something else will be sacrificed. If the colour profiling was intended to improve legibility then that is of course acceptable provided one does not pass off the resulting images as true colour as does Daniels *et al*.

Imaging was done with the aim of being used on the Codex Sinaiticus Project but was first employed for Leipzig University Library's use. The digitization was done for the benefit of students and researchers using Microsoft 'Silverlight' presentation software to be able to view and read the text of the Codex. The team who did this was surely well meaning.[9] They may have considered that the colour and contrast adjustments would improve legibility.

Below is an example of the Leipzig images presented under Microsoft 'Silverlight':

[8] „Mit der von uns in Zusammenarbeit mit Microsoft entwickelten Silverlight-Lösung können wir den Codex Sinaiticus in einer Qualität bereitstellen, die besser ist als das Original…Wir können die Schrift in so vielen verschiedenen Darstellungen zeigen, dass ein lebendiger Eindruck vom Original entsteht."

[9] Elisabeth Fritsch (now Fritsch-Hartung) *et al*.

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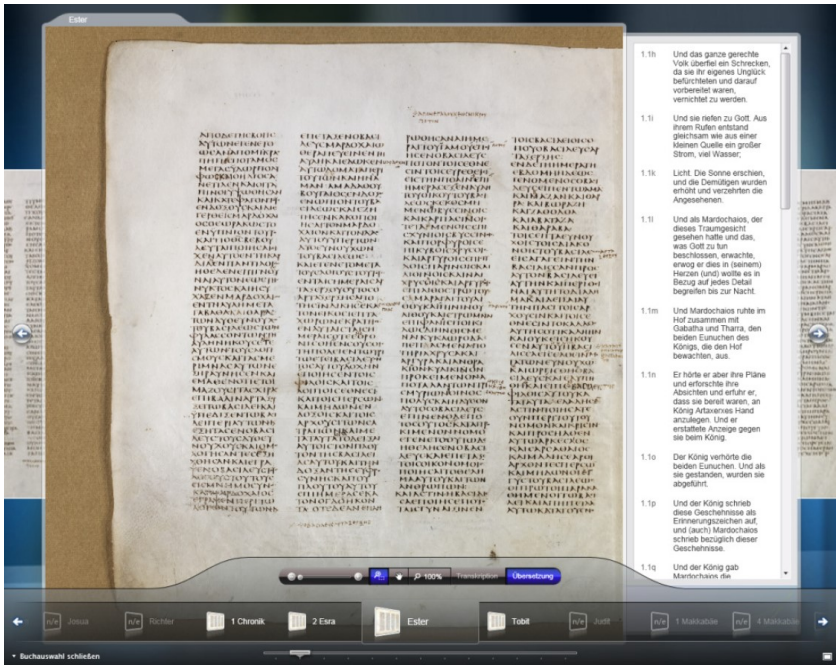
Esler
1.1h Und das ganze gerechte Volk überfiel ein Schrecken, da sie ihr eigenes Unglück befürchteten und darauf vorbereitet waren, vernichtet zu werden.
1.1i Und sie riefen zu Gott. Aus ihrem Rufen entstand gleichsam wie aus einer kleinen Quelle ein großer Strom, viel Wasser;
1.1k Licht. Die Sonne erschien, und die Demütigen wurden erhöht und verzehrten die Angesehenen.
1.1l Und als Mardochaios, der dieses Traumgesicht gesehen hatte und das, was Gott zu tun beschlossen, erwachte, erwog er dies in (seinem) Herzen (und) wollte es in Bezug auf jedes Detail begreifen bis zur Nacht.
1.1m Und Mardochaios ruhte im Hof zusammen mit Gabatha und Tharra, den beiden Eunuchen des Königs, die den Hof bewachten, aus.
1.1n Er hörte er aber ihre Pläne und erforschte ihre Absichten und erfuhr er, dass sie bereit waren, an König Artaxerxes Hand anzulegen. Und er erstattete Anzeige gegen sie beim König.
1.1o Der König verhörte die beiden Eunuchen. Und als sie gestanden, wurden sie abgeführt.
1.1p Und der König schrieb diese Geschehnisse als Erinnerungszeichen auf, und (auch) Mardochaios schrieb bezüglich dieser Geschehnisse.
1.1q Und der König gab
Übersetzung
Josua
Richter
1 Chronik
2 Esra
Esler
Tobit
Judit
1 Makkabäe
4 Makkabäe
Buchauswahl schließen

A word needs to be said about what is claimed by the Codex Sinaiticus Project team themselves. The leaves were photographed at the four different locations with different equipment, and recommendations were made with regard to equipment and processes for consistency:

> The digital photography of Codex Sinaiticus had to establish the best practice, taking into account that
>
> 1. the leaves could not travel and had to be photographed at four different venues with different equipment;
> 2. the writing on the leaves had to be readable on the digital images;
> 3. the natural appearance of the parchment and ink had to be faithfully reproduced.
>
> To make sure that the images produced were consistent, common standards and imaging practices were established across all venues by the Technical Standards Working Party. The recommendations included equipment (cameras, camera software, lighting, lenses, etc.) and processes (setup, colour profiling, etc.).

We can see the results of course in the images on the website, and if faithful colour reproduction was included under point 3 above ('the natural appearance of the parchment and ink') then we cannot but adjudge the results as a failure to follow the recommendations for consistency and 'colour profiling', except in regard to the British Library leaves. It is very apparent that the images produced were *not* consistent *between locations*, at least by the time and in the form that they were uploaded to the website.

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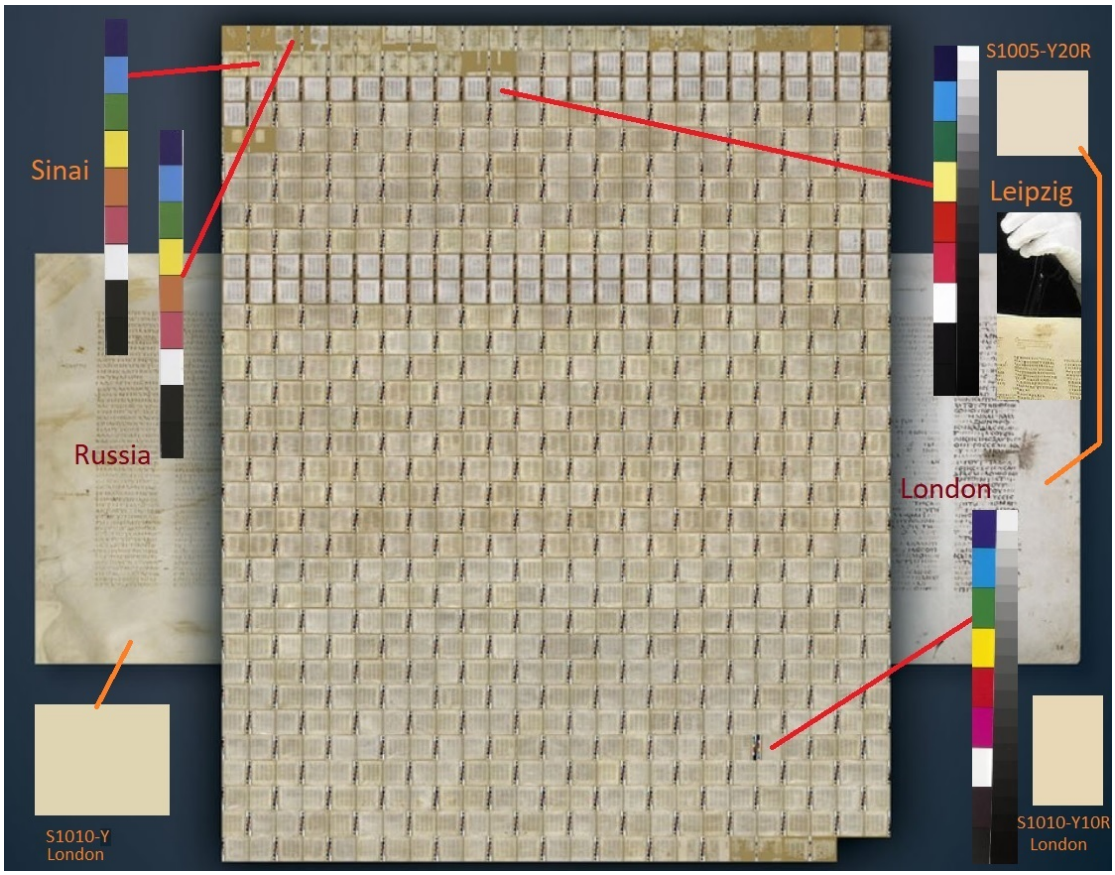
Accordingly, it is invalid for Daniels, Spencer ('Steven Avery') and others to make colour comparisons and draw conclusions in relation to the colour of the original leaves when one set of the images being compared has colour reproduction that is some considerable way different from true and has had contrast increased.

To complicate matters still further with reference to Daniels' book cover, there are leaves from Russia and Sinai in his collage as well. The colour balance of the leaves from all four libraries is shown on the annotated image of Daniels' front cover below.[10]



The red pointers associate the colour separation strip shown in the image with the image itself. For reference, a correctly balanced colour separation is again shown below (fairly faithfully reproduced in the London leaves, as can be seen by inspection):

[10] Just beneath the word 'Leipzig' upper right is a little inset picture showing the colour of a leaf in Leipzig against a white handling glove. Clearly, the Leipzig leaf is anything but white.

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The Russia and Sinai leaves have a common colour balance, but the balance is very different again from the Leipzig and London leaves, and not true colour: blue, cyan and green are too dark, red is very orange, and magenta is now red. Additionally, colour saturation has been decreased.

If consistency between sites had been achieved then the Kodak colour strips would look the same. That they do not do so, and that only the British Library leaves approach the correct reference colours, is evidence sufficient to conclude that the Codex Sinaiticus Project did not satisfactorily meet its aim that 'the natural appearance of the parchment and ink had to be faithfully reproduced' if such appearance is to include colour attributes. This conclusion is naturally strongly disliked by the conspiracy theorists but follows from unassailable logic.

It is accepted as a premise that all four sites used uniform reference colour strips for control. It is an observable fact that reproductions of these uniform strips from the four sites essentially fall into three groups with very different colour reproduction from one another. It follows logically that at least two of the three groups (and possibly all three) are reproduced in false colour.

By comparing the reproduced colour strips in the images with the reference standard it is an observable fact that the British Library leaves, and only the British Library leaves, attain close to faithful colour reproductions of the reference standard. It follows logically that the two other groups (representing Leipzig, St Catherine's and St Petersburg) are being reproduced in false colour. Accordingly, *all* images of Codex Sinaiticus on Daniels' front cover have been 'doctored' in respect of colour *except* the British Library leaves.

Fortunately, to obviate the problems attendant with photography and colour reproduction, the London leaves and the Leipzig leaves have had their colours measured by direct comparison to a common objective standard based around human perception, so they have colour references ascribed that are closest to standard controlled colours on an internationally recognized natural colour chart.[11] This is useful because it eliminates the effects of differences in lighting levels, colour temperatures of lights, and subsequent colour processing, since the leaves and the colour swatches are seen and compared under the same conditions.

[11] Colour Atlas 96, Natural Colour System, Swedish Standard SS 01 91 02 Edition 3 (NCS), according to the guidelines developed by the Improved Damage Assessment of Parchment (IDAP) Network. The colours are based on human perception and based on strengths of red, blue, yellow, green, black, and white. This is different from RGB or CMYK additive and subtractive systems used in colour projections and printing, or the Pantone system.

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The colour of the London leaf on the left of Daniels' cover has been measured by this method and ascribed colour S1010-Y, which colour is shown in the bottom left hand corner of the annotated image above, and in the left bar below. The Leipzig leaf on the right of Daniels' cover has been measured for colour and ascribed colour S1005-Y20R, which colour is shown in the top right hand corner of the annotated image above, and also in the right bar below.[12] We doubt that anyone would call the Leipzig S1005-Y20R 'white'.

There is an observably small difference in colour between those particular leaves. However, some London leaves and Leipzig leaves have been ascribed *identical* colour codes (S1005-Y20R), and thus any colour difference between locations is subtle. The Leipzig and London leaves have had separate histories in different locations, with different preservation regimens, for over 170 years, so some slight difference is to be expected.

The typical colour of the London leaves is S1010-Y10R,[13] shown in the bottom right hand corner of the annotated image of Daniels' collage, and below, together with the colour ascribed to the Leipzig leaves below:

S1010-Y10R (London)
10% blackness, 10% chromaticness, 80% whiteness, 90% yellowness, 10% redness

S1005-Y20R (Leipzig)
10% blackness, 5% chromaticness, 85% whiteness, 80% yellowness, 20% redness

[12] For accuracy, all colours reproduced here are taken directly from NCS without any intermediary or adjustment. These colours can be viewed at the NCS website
[13] The typical is actually the mode of the London distribution and close to the mean.

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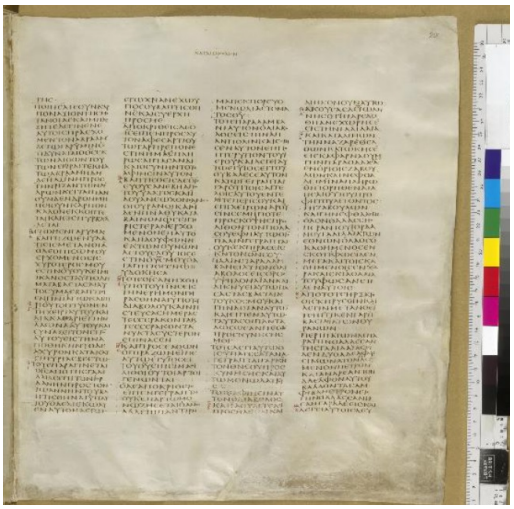
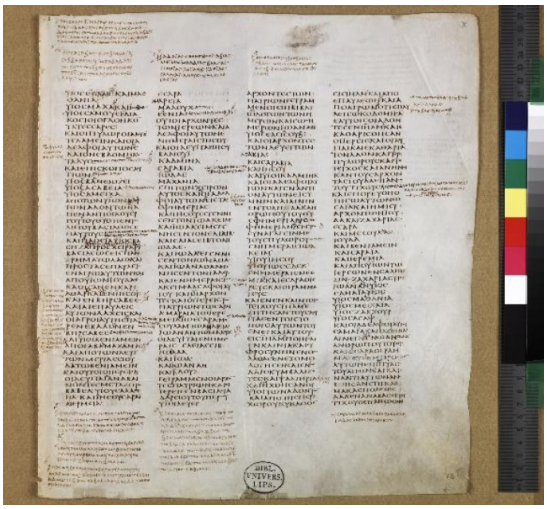
The differences are subtle, and nothing like what Daniels *et al* would have their readers believe. Technically one could say that S1010-Y10R, the most common colour in the London leaves (the mode of the distribution), has only 80% whiteness and 10% colour strength, whereas the Leipzig leaves (S1005-Y20R) have 85% whiteness and only 5% colour strength, so the Leipzig leaves are very slightly 'whiter' and have less colour strength than many (but not all) of the British Library leaves. The subtle difference, however, in terms of *perception* is insufficient to justify the comments made by the conspiracy theorists, and it irresponsible to ask the question, 'Who darkened Sinaiticus?'.

The above evidence is sufficient to demonstrate that Daniels' cover, and the argument he builds on it, are invalid. But we can go further. Once colour balance, hue, saturation, contrast etc have been significantly manipulated (as they have been on the Leipzig leaves images) it may be difficult to restore them to true colour because there are so many variables, and because some information is lost. However, we can in 'what if' exercises examine the effect of adjusting the colour balance of the Leipzig leaves to be *closer* to that of the London leaves (as evident on the colour separation strip), and *vice versa*.

Typical images, such as Daniels has used, straight off the CSP website, are shown below. On the left is a leaf in the British Library. On the right is a leaf in Leipzig University Library.[14] Seeing the images side by side we immediately notice, as with the images displayed by Daniels on his video, that the brown background upon which the leaves are resting is not the same colour, though it is the same material in both images.





[14] We have chosen different leaves from what Daniels chose on his cover because we will be showing below what that particular Leipzig leaf actually looks like in a real environment in Leipzig, and also to represent a London image with a colour strip on the right and not inverted, for easier comparison.

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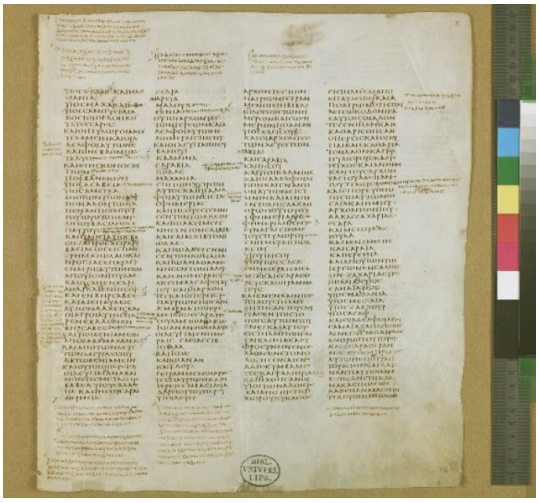
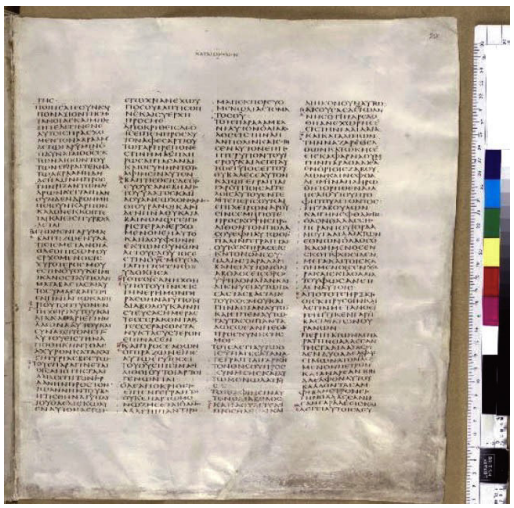
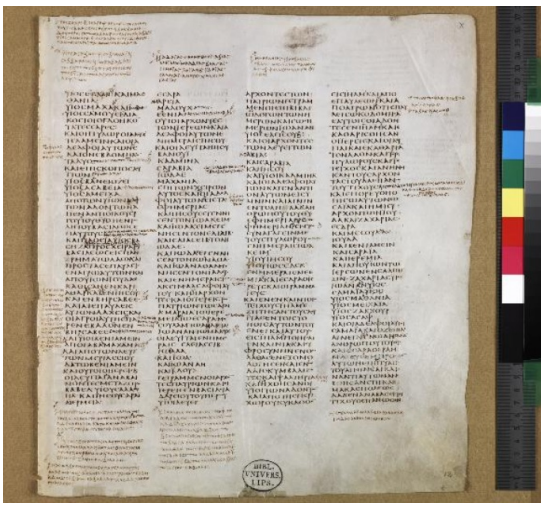
Now we adjust the colour balance on the Leipzig leaf on the right:



In the images above, the London leaf on the left is unchanged (and in relatively true colour as noted). On the right is the Leipzig leaf brought closer to true colour. Notice how the backgrounds on which the leaves rest are now a similar colour, as also the colours of the inks. The similarities are obvious.

Likewise, we can manipulate the colour and contrast of the London leaves towards the *false* colour and contrast of the Leipzig leaves, as shown below.





It is evident that the British Library leaves exhibit more uneven reflectance because the leaves do not sit as flat as the Leipzig leaves. The reason is that the British Library leaves were photographed in their bindings, whereas the Leipzig leaves were unbound into individual leaves and drawn flat on a permeable bed by a vacuum pump. Because the Leipzig leaves are so flat the reflectance of their leaves is optimized, compared, for example, with the British Library leaves, and this of itself has an effect on apparent lightness and variableness of coloration.

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In the above examples we have been considering the images as displayed on the CSP website and have shown that the images from the four locations do not have faithful colour reproduction except the London leaves. But because the colour separation strips and greyscales have been included in all the original photographs taken in London, Leipzig, St Petersburg and Mt Sinai then it is possible for a printer to correct for colour and print all the images in closer to true colour. When Hendrickson publishers made more realistic *prints* than the images on the CSP website William Cooper complained that

> Its fault lies in the fact that every page of the facsimile bears a uniform colour throughout for the parchment of the original. In other words, the white colour of the original parchment belonging to the Leipzig leaves…is masked by giving them the same colour and tone as the rest of the book's leaves.[15]

In reality, the 'white colour' of the Leipzig leaves on the *website* is *false* coloration, and yet Cooper is expecting to see this falseness in printed copy. Cooper is also wrong in stating that every page 'bears a uniform colour throughout'. It is the case that the printed colours of the parchment from the different locations appear closer than on the website, but that is because the print reproduction is closer to the situation that prevails in reality. Any printer provided with hundreds of digital images that each includes the colour separation guide and greyscale would seek to normalize using that embedded information. But in the topsy-turvy world of the conspiracy theorists a printer attempting to improve towards reality is at 'fault'.

Rather than examine and consider whether the leaves in the Codex really are of similar colour, which would falsify their conspiracy theory, the conspiracy theorists would prefer to promote the falsehood that they are very different in colour because they appear so on the CSP website, even though three locations are reproducing the colours in their images far away from true colour rendering.

But Peterson is emphatic:

> [I]t is ***demonstrably untrue*** that the leaves in Leipzig are the cool-grey colour that is shown in the [CSP] digital images. It is ***demonstrably untrue*** that those leaves are drastically different from those in London.

[15] W. R. Cooper, *The Forging of Codex Sinaiticus (2016).* Daniels comments similarly on his videos.

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What the Leipzig leaves really look like

Konstantin Tischendorf presented the 43 Leipzig leaves (which he named 'Codex Friderico-Augustanus') to the Leipzig University Library in 1846. They were bound as a gilded leather book and remained in that state until 2004 when they were disbound into individual leaves. All images of the Leipzig leaves showing them bound are thus pre-2004, and all images showing them as loose leaves are 2004 onwards.

The Codex Friderico-Augustanus remained in Leipzig University Library except on two occasions: (i) when loaned to Tischendorf for a trip to England in 1865, and (ii) when in temporary storage elsewhere for preservation during the 1939-45 war (which move was fortuitous, since the library was 2/3 destroyed during Allied bombing raids).

The Codex Friderico-Augustanus was not preserved in a controlled temperature or controlled humidity environment until 1998, and it particularly suffered from damp during its war storage. No less an authority than Dr Ekkehard Henschke, Director of the Leipzig University Library 1992-2005, and a member of the CSP team 2003-5 when the leaves were disbound, specifically writing about the Codex admitted that

> [T]he varying hot, cold and humid conditions in Leipzig produced a lot of damage, arising especially from oxidation of the ink…Like many other valuable manuscripts and books which were stored in old castles and fortresses during the war, this part of the *Codex* had suffered from humidity…The leaves owned by the British Library are in a better state.[16]

Many conspiracy theorists would have the general public believe the opposite: that the leaves in the British Library were distressed and stained, but that the leaves in Leipzig still reflect the whiteness and purity of 'pristine' new parchment, with no significant staining or wear. It is thus instructive first to see what state the Leipzig leaves were in before they were disbound and prepared for the digitization project. Later we shall show images of the leaves in their disbound state under normal lighting.

[16] E. Henschke, *Digitising the Hand-Written Bible: The* Codex Sinaiticus*, its History and Modern Presentation*, Libri, 2007, vol. 57.

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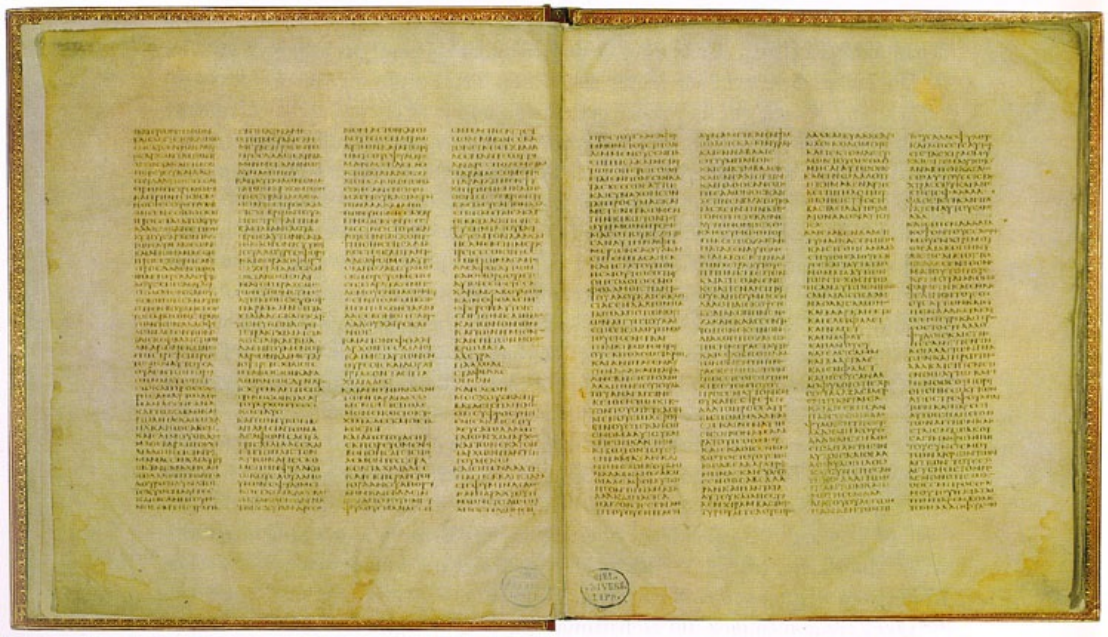
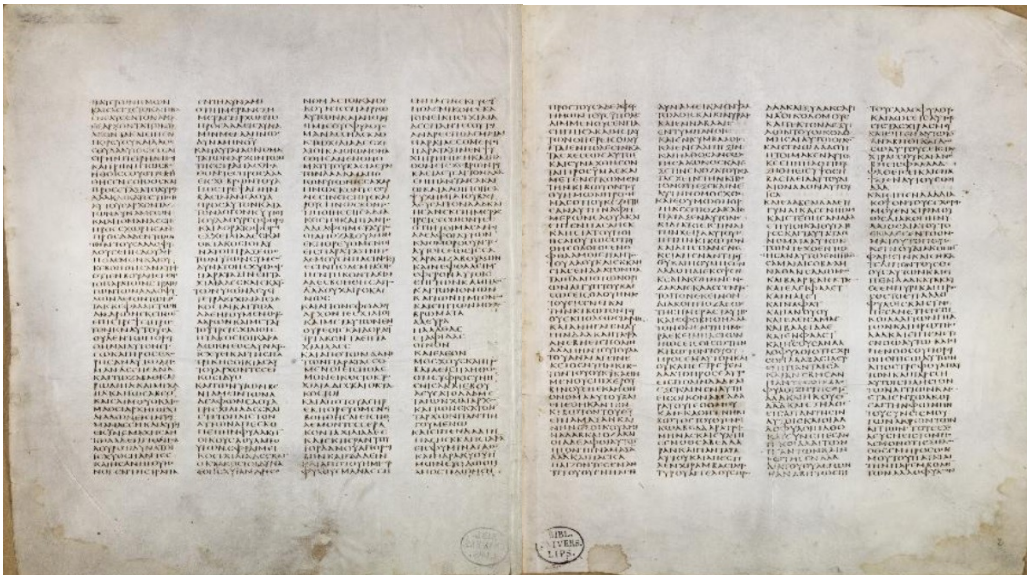
The image below[17] shows the first full 'opening' in the Codex Friderico-Augustanus, Q35-f.1v and Q35-f2.r prior to the leaves being disbound in 2004. The gilt leather binding is the original applied in 1845, and how it was brought to England and exhibited in London, Oxford and Cambridge in 1865.



This photograph above shows significant yellowing and staining of the leaves. The shapes of the stains (see, for example, bottom corners) match the stains on contiguous leaves in the British Library. Below is the same opening (Q35-f.1v and Q35-f2.r) after disbinding and cleaning by Leipzig University Library from images taken from the CSP website, which again starkly shows just how washed out the CSP images are:



[17] Copyright Leipzig University Library, used for non-commercial comparison purposes.

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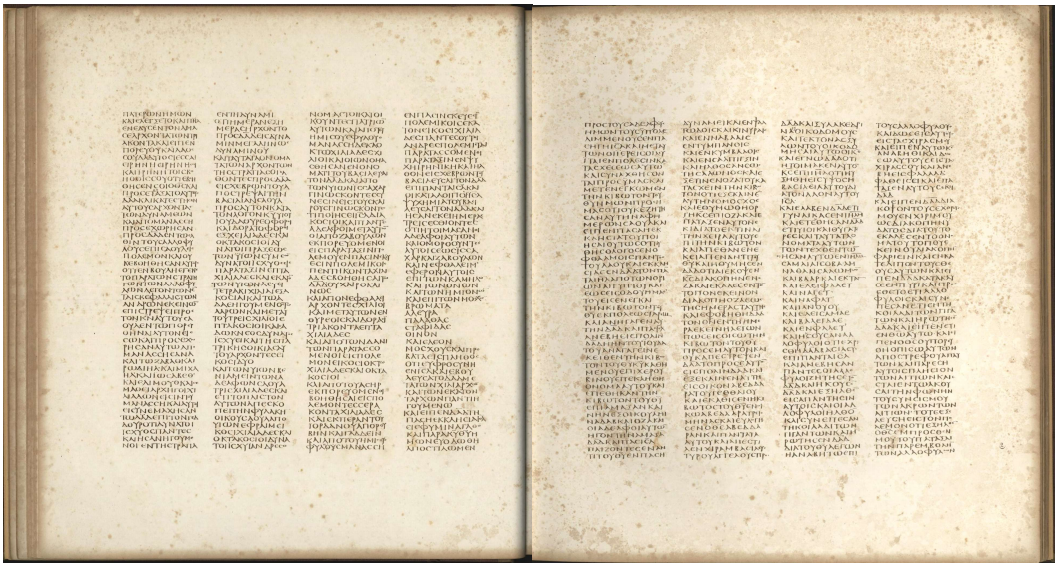
It is also noticeable that some of the bright yellow staining, for example above the column furthest to the right, has been significantly attenuated. Arguably, the 'whiter' presentation is preferable cosmetically compared to the yellow original, although it is not preferable realistically.

As a matter of interest, the leaves appear whiter even than in the typographical *facsimile* edition produced by Tischendorf in 1846, which has a more typical parchment coloration. Here is the same opening (Q35-f.1v and Q35-f2.r) in that facsimile:



By contrast, the washed out SCP images resemble more closely the monochrome images of the Leipzig leaves published by Kirsopp Lake in 1922 from photographic plates and printed by the collotype process:

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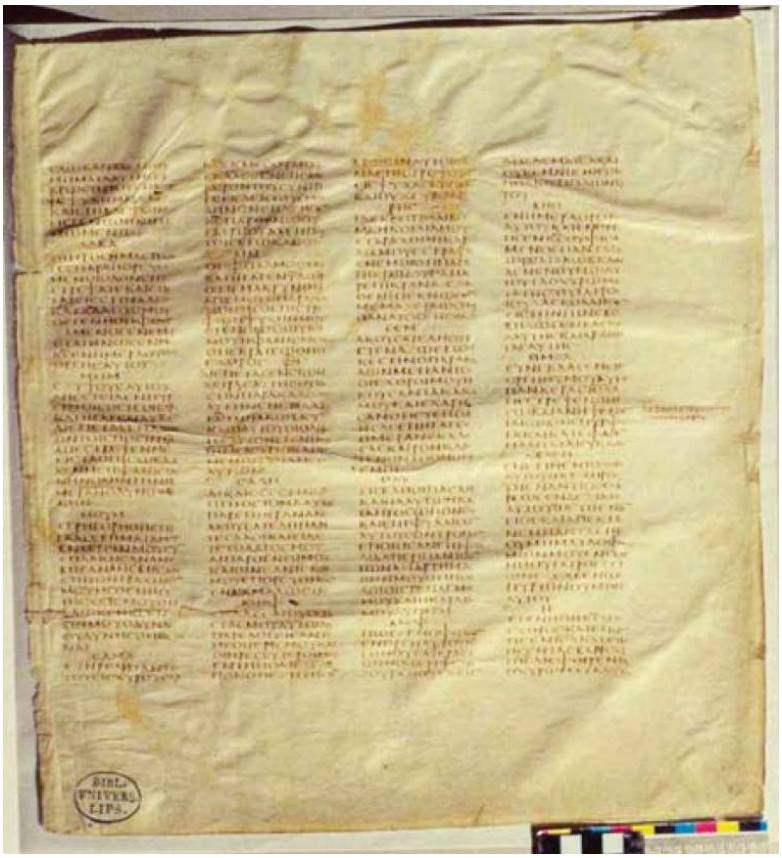
An image of one of the Leipzig leaves after being disbound in 2004 is shown below. It is again noticeable that the parchment is distinctly yellow, and there are strong yellow-brown stains locally, just as we saw in the photograph of bound leaves.



This particular image was not produced for the Codex Sinaiticus Project and does not utilize the same control strips as used by all the partner institutions in that project. However the image does include standard CMYK (cyan-magenta-yellow-key[=black]) and black and white reference markers to check and maintain colour fidelity. It was photographed with a mid-grey backing sheet as a compromise (since the parchment is translucent) rather than the standard brown material that would be used in the Codex Sinaiticus Project. That the colour reproduction is reasonably close to true can be ascertained by the reproduction of cyan, magenta and yellow in the reference strip (by comparison, on the CSP images of this leaf the yellow is insipid and the magenta is rosy-red).

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We will attempt to trace where the false coloration may have occurred in images of the Leipzig leaves.

Below is a view of the Leipzig photographic setup. The green pipe is connected to a vacuum pump, and the purpose is to draw the parchment leaves flat to the permeable brown bed. The view of the Kodak reference strip in this photograph shows that close to true colour really was attainable in Leipzig since it is attained in *this* image on a standard camera. There are also familiar colours in the picture (*Post-It* notes, skin tone), which give confidence.

Note especially the colour of the green vacuum pipe and the green tape.

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Now observe the view of the particular Leipzig leaf Q36-f.4r that we compared side by side with the British Library leaf above as seen through the imaging camera when being placed on the brown mat:

We noted above that the false colour reproduction of the reference strip on the Leipzig images was making greens too dark and yellows too light. The effect was to wash out the yellow colour in the parchment to greyish-white and darken the ink. Here we see the effect above: the green vacuum hose is too dark, and the yellowness of the leaf is too pale. It cannot be ascertained from this image whether the colour temperature of the lighting is incorrect, whether the reference colour temperature in the digital camera is set incorrectly, whether there is a camera fault, or whether this is the result of subsequent image processing. Peterson suspects the colour temperature of the lights:

> [M]y suspicion is that the lighting in the [Leipzig] room had adverse effects on the resulting images…I'm not saying that the leaves are actually dirty brown, but rather that the leaves are not greyish-white…[T]he imaging has really altered our perception of the [Leipzig] manuscript's colour.
>
> [A] possible explanation [is] that the Leipzig portion was photographed under particularly cool lights (in the 6500K range). This would have given

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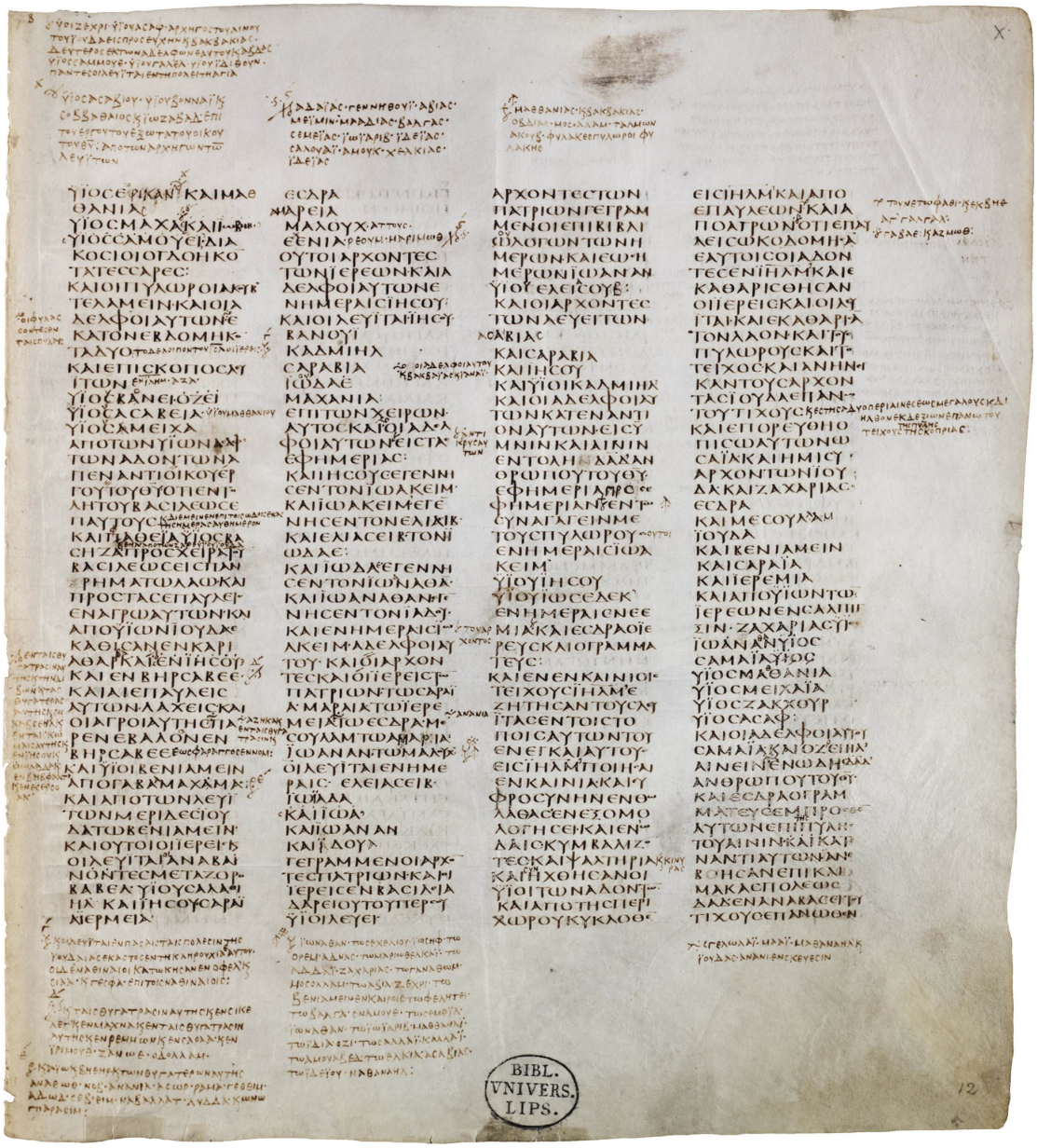
> everything a cool-grey appearance…The tone of the light you are using drastically influences your perception of the objects you're looking at.

By subsequent image processing the brown background was trimmed away, yielding the attractive false colour image of this leaf on the Leipzig University Library website below:



This looks spectacular, and is excellent for studying the text, but it is useless for judging original colours of either ink or parchment.

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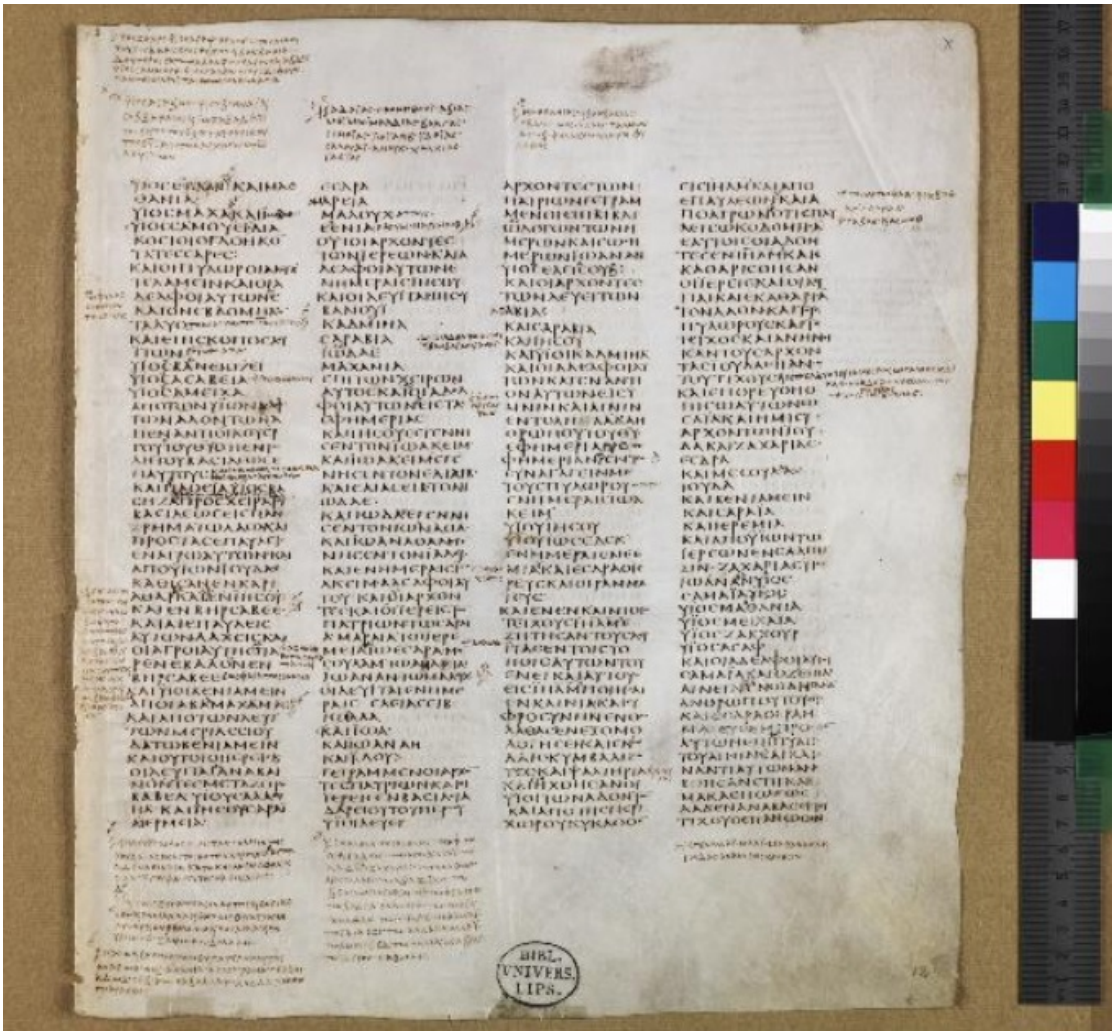
The associated image of Q36-f.4r fed to the CSP website is shown below:



This indicates that further 'colour profiling' away from true colour has occurred. The green tape is too dark (as is the green in the reference strip). The brown mat is now noticeably too dark brown. The observable 'granularity' in the brown mat, as well the display of the grey scale, evidences that the contrast has been increased.

This is the greyish-white look of the Leipzig leaves beloved of the conspiracy theorists. They draw attention to such false colour images as though they were admissible evidence that the Leipzig leaves are white and that the British Library leaves have been deliberately darkened. In truth, most of the perceived difference is traceable to a different photographic setup and image processing.

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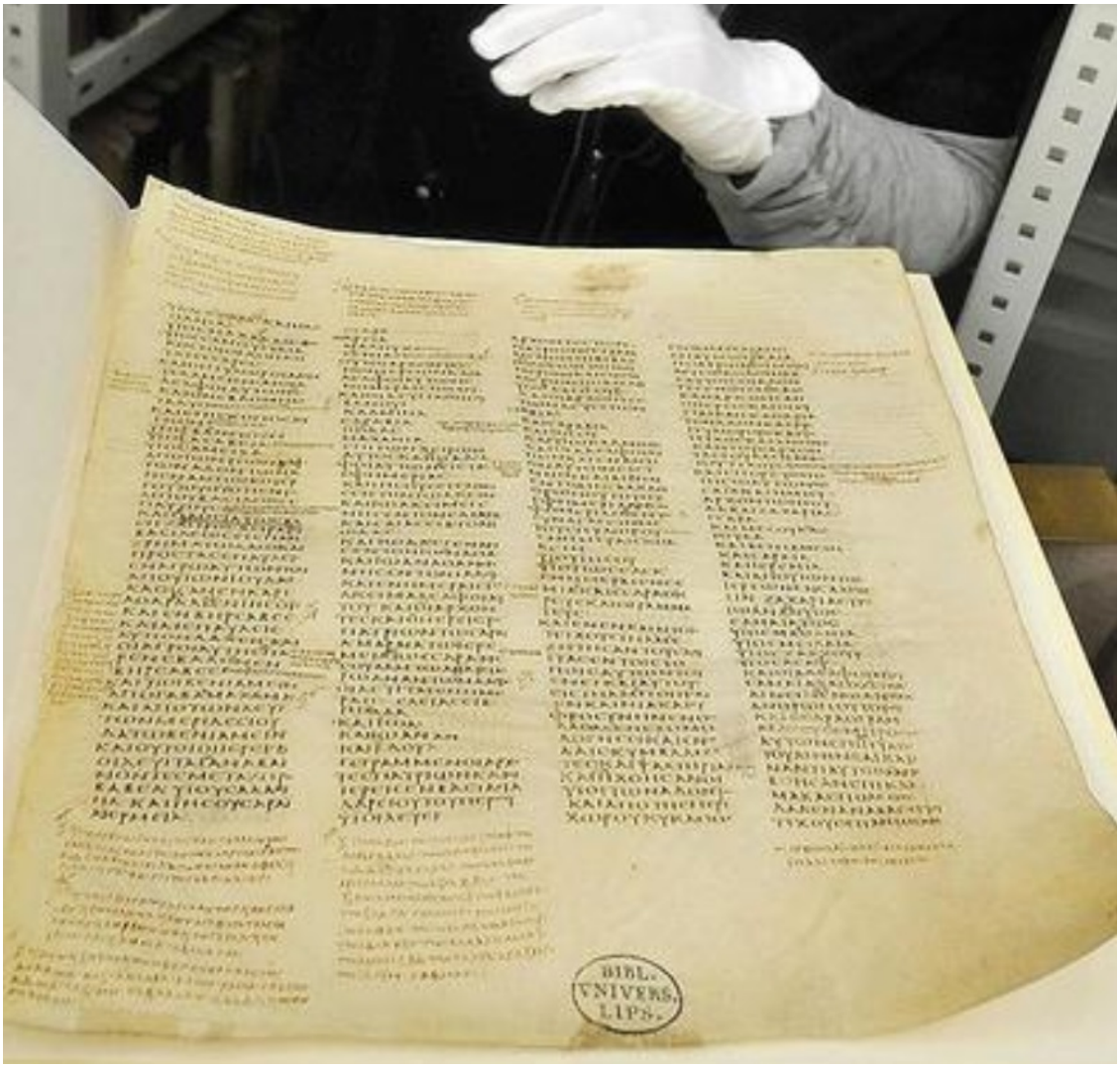
Fortunately we have photographic images of *this very page* Q36-f.4r taken under normal lighting conditions in the Leipzig University Library which confirm just how false the colours in the CSP images are. Finally, we can see what the Leipzig leaves *actually* look like in Leipzig itself in environments where we have familiar things to compare them with, for example white cotton handling gloves, human beings with their skin tones, computer screens etc.[18] This will give us the final assurance whether these leaves are in reality a greyish-white or yellow.

Note the colour of the leaf reflected in the underside of the white glove. Does this leaf look white, as Daniels and Cooper claim? Or does it look rather like the leaves in the British Library?



[18] These images are details from fuller images and are included strictly for non-commercial purposes under 'fair use' provisions for research, study, comparison and comment. All rights remain with their current copyright holders.

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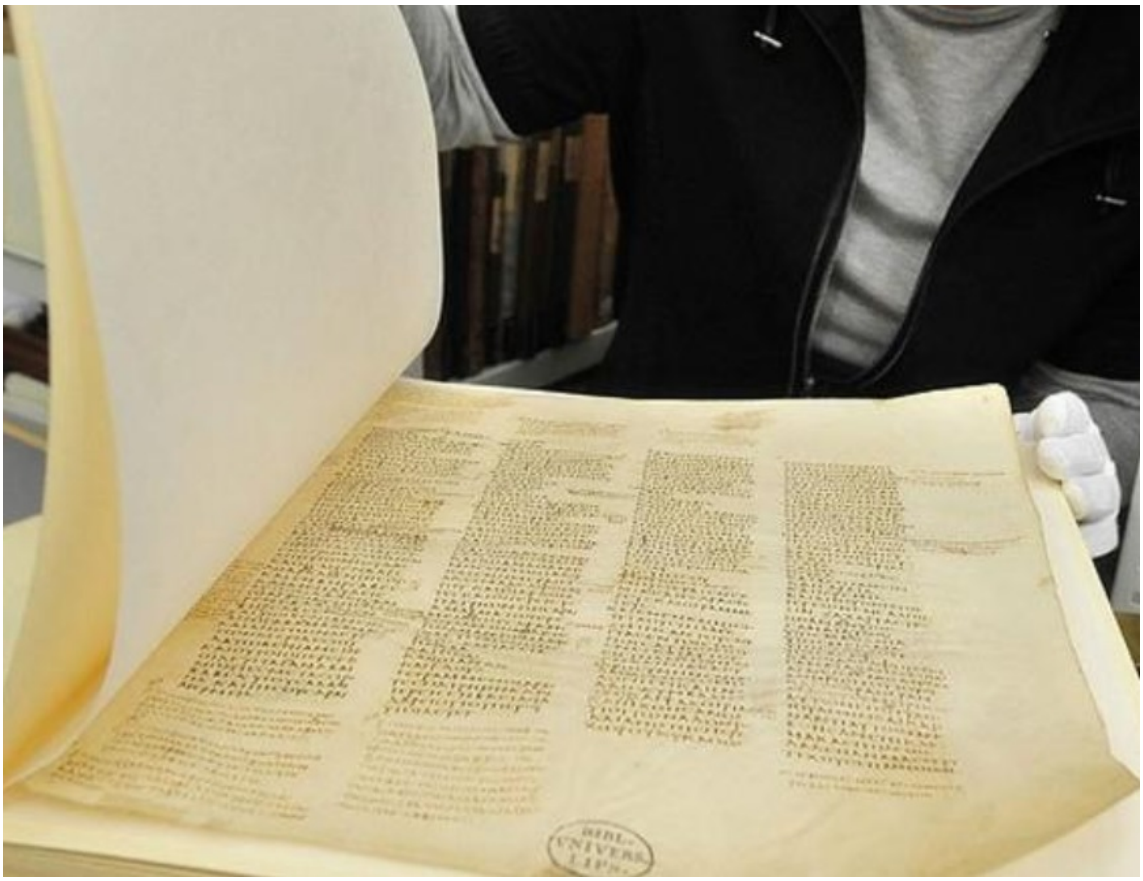
Note the colour of the leaf in reality compared to the white handling gloves. The reflection of its colour on the fingertips of the gloves is also apparent.



Here is another photograph of the same leaf, with some skin tone for reference:

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The photograph below, though low resolution, adequately shows a Leipzig leaf with white backlighting as well at some ambient top lighting. The leaf is distinctly yellow.

The photograph below shows a Leipzig leaf under strong white top illumination. Note the strong yellow colour of the reflection flooding the light garments of the researchers, as well as the colour of the parchment under the light where not 'whited out' by overexposure.

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The photograph below shows the first page in the Leipzig collection (Codex Friderico-Augustanus), Q35-f.1r in the Leipzig University Library environment under normal interior light, with flesh tones in the picture.

Note the white background of the computer screen for reference. It should be noted that because the leaf is translucent and on a white-ish background it will appear whiter than it would look when bound into a codex. It nevertheless looks distinctively yellow.

The two persons whose heads are in the picture are staff from the British Library on a visit to Leipzig University Library to see their holding of Codex Sinaiticus. For comparison of skin tones, see the same persons (second from left and far right) back at the British Library with their leaves of the Codex Sinaiticus in the image below:

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It is noticeable how close in colour the leaves really are in these two locations. As Peterson confirms:

> The Leipzig leaves in actuality have a slight yellow tint that is exactly the same as, or very near to, the tint of some leaves in London.

We would not of course expect them to be very different were it not for the disinformation propagated by conspiracy theorists.

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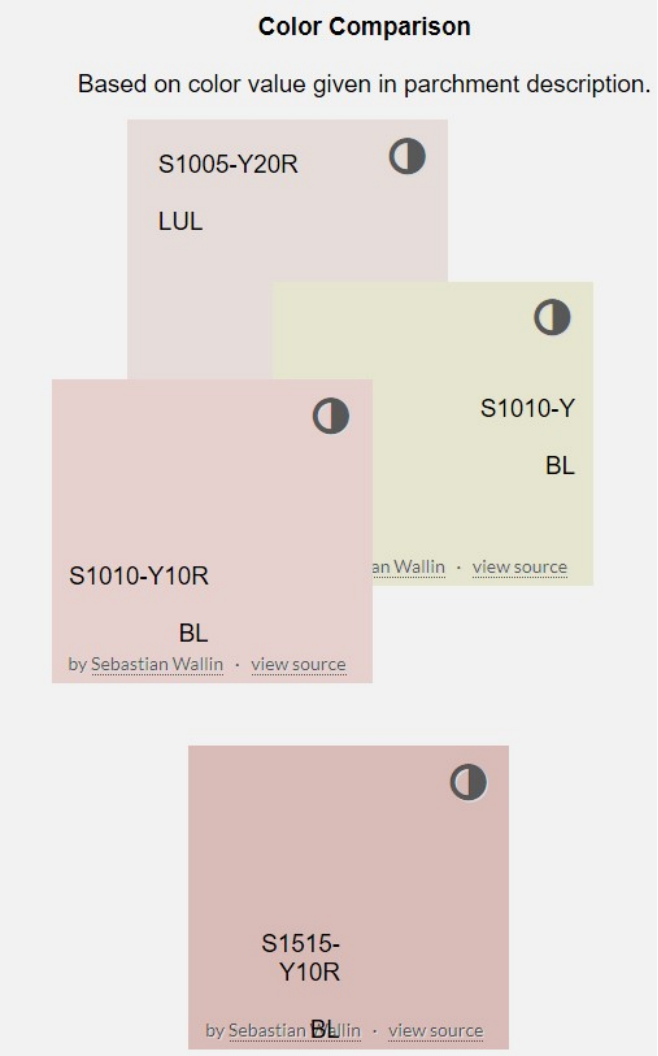
Appendix

It is apposite to mention another set of misleading falsehoods promoted by conspiracy theorists Daniels, Spencer ('Steven Avery') *et al* through a website.[19] Using the NCS colour identities ascribed to each leaf by the CSP team they yet display the ascribed NCS colours in false colour. We reproduce their extract below directly from their website:



The only colour that bears the slightest resemblance to the true colour is the square for S1010-Y, and even that is poor. The others are bizarre pinks that bear no resemblance whatsoever either to the pages of the Codex or the stated colours in the NCS system.

[19] www.sinaiticus.net. Apart from Daniels and Spencer there is Mark Mitchie and W.R. Meyer.

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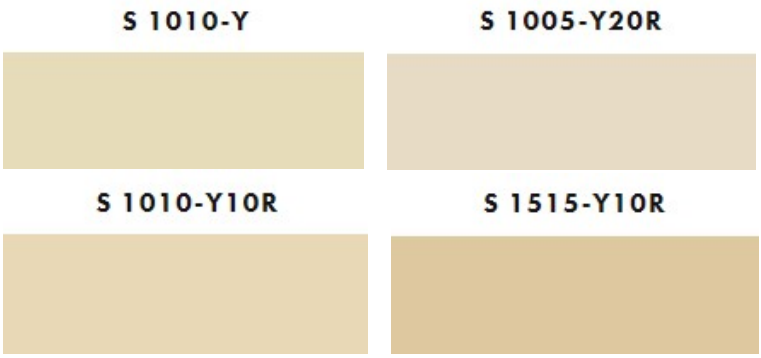
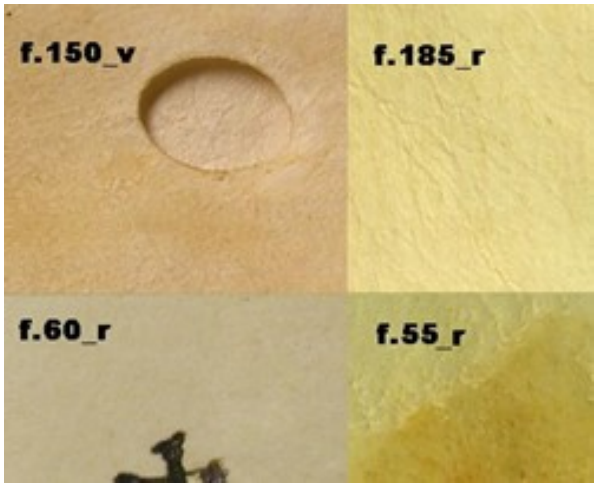
The true colours of those squares should be as below, and represent typical variations in the pages of Codex Sinaiticus.



As can be confirmed by checking the colours with the NCS standards, what Daniels *et al* have done is to *misrepresent* S1005-Y20R as S1005-R20B, S1010-Y10R as S1010-R10B, and S1515-Y10R as S1515-R10B, i.e. combinations of colour hues blue and red rather than yellow and red. Three out of four of their colour squares are therefore in entirely false colour, taken from an entirely different colour chart.

Another part of the website run by the conspiracy theorists is extremely misleading by showing the following image from the Codex Sinaiticus Project website:



with the commentary

> Amazingly, all four leaves that make up this photo are given the colour code S1010-Y10R in the parchment descriptions in the "See The Manuscript" section of the CSP site!

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It is true that all four of the pages referenced have the ascribed colour S1010-Y10R, which is the typical and most common colour ascribed to pages of the British Library leaves. But because the perceived colours in the collage (which are tiny details of pages under high magnification) are so different, yet the pages from which they have been taken have been ascribed the same colour by colour matching, the reader is presumably supposed to infer that the NCS colour matching method is unreliable. The website thus invites and induces the viewer to make the fallacy of composition, inferring that something is true of the whole ('leaves' in their commentary) that may only be true of a tiny part of a leaf. This is a complementary approach from that above where this same website falsely reproduced the colours of the NCS colour swatches as pinky-red shades that bear no resemblance to the actual leaves.

Fortunately the detail images have their respective British Library identification, so one can see what the leaves really look like, ensuring the reference colour markers in the frame to ensure faithful reproduction.

The first, f.150_v, shows a noticeable amount of local staining around the hole, but away from the stain the parchment is the typical and most common S1010-Y10R colour:

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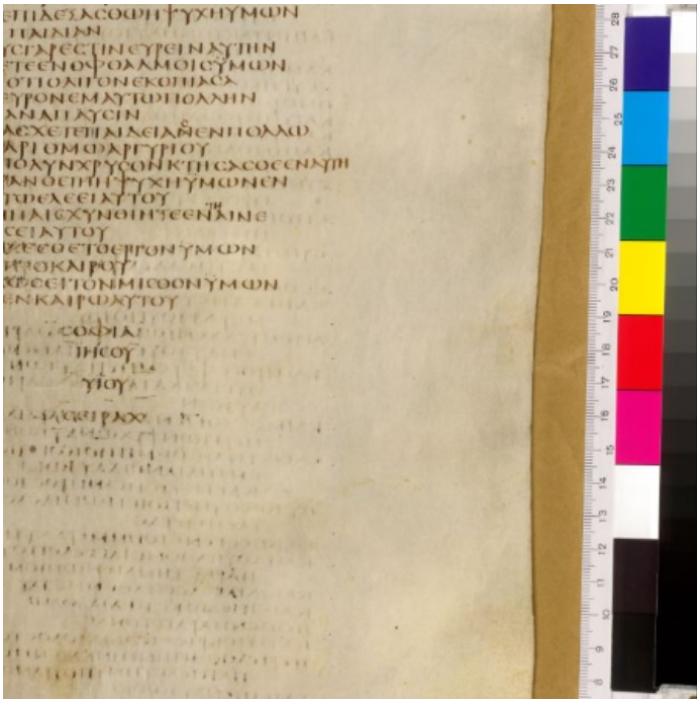
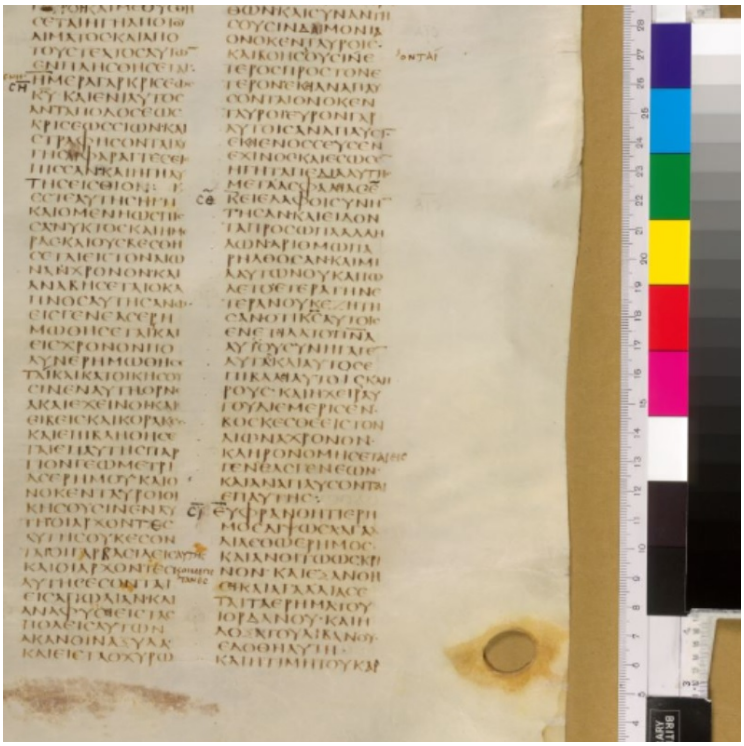
The second f.185_r is shown below, again the typical colour:



The third, f.55_r, with a significant stain is shown below. Clearly the detail in the little inset picture was highlighting the significant staining around the hole. Away from this stain the parchment is its typical colour:



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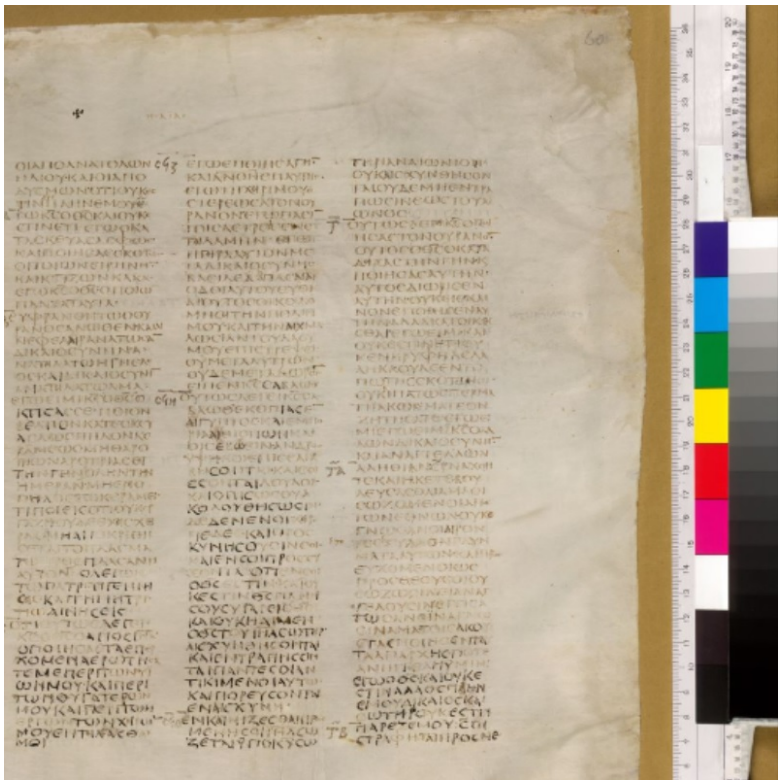
Finally, f.60_r, there the inset picture is detailing a cruciform mark (it appear top left of the image below). Again, the parchment is typical colour:



Of course, the conspiracy theorists will have seen for themselves that the colour of those four pages is fairly consistent (except in local spots with stains etc). Yet they state,

> Amazingly, all four leaves that make up this photo are given the colour code S1010-Y10R.

The reader may draw his own conclusions whether there is anything 'amazing' about these leaves being ascribed the same colour code. He may also wish to judge whether any among the parties is faking it or has intent to mislead.

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